

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2, 14-17, 22-26, and 31-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1, 31 and 33, the jacket comprises two parts, and the outer wall and the inner self-supporting structure. The claims recites the outer wall is made of a metal material. Also, the claims recite the inner self-supporting structure is made of a metal material. This implies the two parts are made of different metal materials. However, the claims also recite the ***jacket*** is made of an oxide dispersion strengthened platinum alloy. Since the jacket comprises these two parts, then it suggests the two parts are made of the same oxide dispersion strengthened platinum alloy. This contradicts the other limitations of the claim. Please clarify if it is intended for the two parts to be made of the oxide dispersion strengthened platinum alloy.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-2 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danner (2,464,028) in view of Singer et al. (6,679,085). Danner discloses a mandrel for producing glass tubes, the mandrel comprising a jacket. Danner teaches the jacket forms the outer surface of the mandrel and comprises an outer wall (10) and an inner self-supporting structure in the form of a plurality of support struts (40) (col. 4 lines 18-26, col. 5 lines 11-16, 37-48, figures 2 & 4). However, Danner does not specify a material for the jacket. Singer teaches employing an oxide-dispersed platinum alloy for shaping tools used for manufacturing hollow glass shaping because of its low adherence to glass and little corrosion or oxidation (col. 6 lines 30-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed an oxide dispersion strengthened platinum alloy as the metal material of the jacket of Danner as the material will assist in the glass tube/rod making process of Danner by preventing adhesion to the glass and minimizing corrosion due to the hot glass.

5. Claims 1, 14-17, 22-24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (3,236,619) in view of Singer et al. (6,679,085). Frye discloses a mandrel for producing glass tubes and rods, the mandrel comprising a metal jacket. Frye discloses the metal jacket forms the outer surface of the mandrel and comprises an outer wall (24) and inner self-supporting structure in the form of one annular ring (24b). Frye further teaches the jacket comprises a platinum alloy material (col. 3 lines 33-48, col. 4 lines 25-31, 54-55), but does not specify if this metal is an oxide dispersion strengthened platinum alloy. Singer teaches employing an oxide-

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dispersed platinum alloy for shaping tools used for manufacturing hollow glass shaping because of its low adherence to glass and little corrosion or oxidation (col. 6 lines 30-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed an oxide dispersion strengthened platinum alloy as the metal material of the jacket of Frye as the material will assist in the glass tube/rod making process of Frye by preventing adhesion to the glass and minimizing corrosion due to the hot glass.

6. Regarding claim 14, Frye discloses a biasing means (23) at a rear end of the mandrel adapted to assure a tight fit between a body (21) and the jacket (col. 4 lines 19-24).

7. Regarding claim 15, from the figures, the mandrel is depicted as being axially symmetrical along its longitudinal axis.

8. Regarding claim 16, Frye discloses the mandrel is a Danner tube (col. 1 lines 33-48, col. 3 lines 17-19).

9. Regarding claim 17, the mandrel provides for a blowpipe (col. 4 lines 14-17, figure 3, col. 6 lines 23-25).

10. Regarding claim 23, the mandrel has a front end and rear end, wherein the diameter decreases in a direction from the rear end to the front end (figure 3).

11. Regarding claim 24, the mandrel comprises at the front end a fixed bearing (25) that secures the jacket, body, and blowpipe together (col. 4 lines 47-51, 55-59). Frye discloses rotation of the mandrel in unison (col. 5 lines 65-67). Accordingly, since the

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bearing assists in securing the parts together at the front end, it is adapted to rotate the mandrel around an axis.

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (3,236,619) in view of Singer et al. (6,679,085), as applied to claims 14 and 23 above, and further in view of Dick et al. (6,595,029). Frye does not disclose a coating that is released when forming the glass tube. Dick teaches it is known in the prior art utilizing the Danner process to produce glass tubes for the mandrel to have a coating, which upon contact with an inside surface of the tube being made is released and accumulates on the inside surface to form a coating thereon to produce chemical resistance in the tube (col. 2 lines 41-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a similar coating on the mandrel of Frye as it helps harden the tubes form and promotes chemical resistance of the tube.

13. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (3,236,619) in view of Singer et al. (6,679,085), as applied to claims 14 and 23 above, and further in view of Cozine (3,364,004). Frye fails to disclose a floating bearing at the rear end or a spring as the biasing means. Cozine teaches a similar mandrel for producing glass tubes (col. 1 lines 29-32), the mandrel comprising a rear end biasing means, such as spring (50), adapted to assure a tight fit between a body, a sleeve, and a blowpipe (figures 1 and 2, col. 5 lines 10-16). Cozine further teaches a fixed bearing, such as cap 30, at the front end of the mandrel as well as a floating bearing at the rear end of the mandrel, both adapted to rotate the mandrel about its

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longitudinal axis (col. 2 line 70 to col. 3 line 5, col. 4 lines 46-58, col. 5 lines 23-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the floating bearing at the rear end and a spring as a biasing means at the rear end, to provided for a tight fit among the sleeve, body and blowpipe and ensure rotation of the mandrel in unison.

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frye et al. (3,236,619) in view of Singer et al. (6,679,085) and Dick et al. (2004/0025540). Frye discloses a mandrel for producing glass tubes and rods, the mandrel comprising a metal jacket. Frye discloses the metal jacket forms the outer surface of the mandrel and comprises an outer wall (24) and inner self-supporting structure in the form of one annular ring (24b). Additionally, as can be seen in figure 3, the mandrel has a diameter that is conical in a direction from the rear end to the front end (col. 4 lines 43-46). Frye further teaches the jacket comprises a platinum alloy material (col. 3 lines 33-48, col. 4 lines 25-31, 54-55), but does not specify if this metal is an oxide dispersion strengthened platinum alloy. Singer teaches employing an oxide-dispersed platinum alloy for shaping tools used for manufacturing hollow glass shaping because of its low adherence to glass and little corrosion or oxidation (col. 6 lines 30-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed an oxide dispersion strengthened platinum alloy as the metal material of the jacket of Frye as the material will assist in the glass tube/rod making process of Frye by preventing adhesion to the glass and minimizing corrosion due to the hot glass.

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15. Frye further teaches in figure 3, the mandrel has a diameter that is conical in a direction from the rear end to the front end (col. 4 lines 43-46). Like Frye, Dick teaches Danner pipes are known to have conical shapes from a rear end to a front end (figure 1, [0002]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have adapted the mandrel of Frye to have a more conical shape from the rear end to the front end as it suitably produces glass tubes.

Response to Arguments

16. Applicant's arguments with respect to Cozine have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEGHAN whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Queenie Dehghan/
Examiner, Art Unit 1741